INDEX

PETROLEUM REFINER

SPECIALIZED FOR THE OIL REFINING INDUSTRY, INCLUDING PETRO-CHEMICAL ENGINEERING, PETROLEUM SYNTHETICS AND NATURAL GASOLINE

A Gulf Publishing Company Publication

1945 . . . Volume 24

A

Abercrombie Company, J. S., iii 85.
Absorber calculations, iii 113; design factors, vii 256; design, foaming a factor, vii 249; oil, design of, iii 111.
Adsorption oil, iii 110; gasoline saturation, iii 124; selection of, iii 116; testing procedure, vii 249.
Absorption system, types of vii 248.
Abstracts*
Acetylene welding, safe practice, xii 493.
Acid cements, v 194; tanks, ceramic linings, v 194.
Acids, fatty, ii 73.
Acrylic resins, i 6.
Adams, Ludwig, isobutylene research, ii 55.
Addition agents, diesel fuels, iv 132.
Additives in postwar lubricating oils, xi 484.
Advances in the Use of Laboratory Fractionating Columns — Von Dr. F. Hilebrath, viii 314.
Albert, W. C.—Design for Efficiency in a Routine Laboratory, iii 104.
Alkylation, vi 201.
Alkylation—Backbone of Aviation Gasoline—William Mending, vi 201.
Alkylation, HF, flow chart, vi 242; with sulphuric acid as catalyst, iii 123.
Aliphatic alcohols, v 200.
Allen, C. C., and H. W. Duckwall—Sulfuric Acid Extraction in Hydrocarbon-Type Analysis, ii 44.
Aluminum chloride, v 184.
Aluminum, lining flash towers with, x 386.
A. & M. College of Texas, i 11; xii 495.
American Chemical Society, vii 290; x 405; Wichita Section, ix 327.
American Gas Association, v 196.
American Institute of Chemical Engineers, xii 536; South Texas Section, ix 349.
American Petroleum Institute, xi 423, 427, 436, 460; xii 503.
American Society of Mechanical Engineers, ii 77; vii 262; xii 515.
Amis, M. E., iii 104.
Ammonia from natural gas, v 196.
Amylenes, vi 202.
Analysis, extrapolation method, ii 45; gas, i 26; nomographic, ii 48; water, iii 112.
Anderson, B. F. (pictures by), vii 245.
Anderson, N. K., and M. J. Sterba—Small-Scale Fluid-Type Catalytic Unit Designed, xii 427.
Anderson-Prichard Research & Development Division, ii 45.
Aniline-point apparatus, xii 530.
Antiknock coefficients (lead), iii 129; performance of postwar motor fuels, ix 327.
Application of X-ray diffraction, vi 233.
Arabian American Oil Company (Ras Tanura), viii 325.
Arc welding, safety in, xi 481.
Arch Petroleum Company, iii 98.
Arkansas Fuel Oil Company, viii 297; xii 493.
Arnold, M. L.—Vibration in Compressor-plant Piping, ii 59.
ASME Code, unfired pressure vessels, i 22.
Asphalt, determining paraffin wax in, xi 453.
Asphalt u. Teer, xi 458.
ASTM and equilibrium flash vaporization curves, x 382.
ASTM motor method, ix 327.
Atomic energy, xi 427.
Attaway, Don — Safe Practice in Natural Gasoline Plants, viii 287; Safe Practice in Oxy-Acetylene Welding, xii 493.
Automatic control, ii 70.
Aviation gasoline, characteristics, iii 134; manufacture, iii 120; natural gas, v 197.
Avon refinery (Tide Water), vi 205.
Azeotropic distillation diagramatic tower drawing, xii 523.
Azeotropic distillation, toluene recovery, xii 519.

B

Baekeland, Leo Hendrick, i 3.
Bahrein Petroleum Company, viii 325.
Bakersfield, California, viii 302.
Bailey Meter Company, i 31.
Bakelite, i 3.
Barth, E. J. (translations)—Advances in Use of Laboratory Fractionating Columns, viii 314; Determination of Cetane Value from Average Boiling Point and Specific Gravity, x 394; Fatty Acids by Oxidation of Hydrocarbons, ii 73; Fundamentals of Wetting and Detergent Compounds, v 199; Manufacture of Aviation Gasoline, iii 120; Oiliness and Dipole Moment of Lubricants, viii 321; Synthesis of Molecules With Lubricant Properties, v 185; A New Method to Determine Paraffin Wax in Asphalt, xi 458.
Bartleson, J. D., et al—Factors Causing Lubricating Oil Deterioration in Engines, vii 280.
Bates, John R., et al—Peacetime Fuel Oils from War Equipment, xi 450.
Baton Rouge refinery, laboratory, iii 104; safety valves, vii 246.
Beeman, D. L.—Short-Circuit Currents in Industrial Plants, iii 116.
Bell, F. W.—Increasing Propane Recovery in Existing Natural Gasoline Absorption Plants, vi 237.
Benz, George R., and T. A. Sinclair—Development and Use of Excess-Flow Valves in Liquefied Petroleum Gas Industry, ii 52.
Berl, Ernst, et al — Thermobarometer, viii 303.
Bard, W. G., et al — Thermobarometer, viii 305.
Betz, John Drew—Preventing Boiler Metal Embrittlement, vii 254.
Betz, W. H. and L. D., vii 254.
Bikerman, J. J.—Fundamentals of Consistency and Viscosity, xii 507.
Binary distillation, calculation of plate columns, Ponchon method, viii 299; ix 357.
Binary mixtures, fractionation, i 32.
Blank, Wesley H.—Sliding Bearings for Hot Tanks and Towers, iii 108.
Blending agents, gasoline, ix 331.
Blending, effect of olefins (gasoline), ix 333; effect of light materials, ix 331; hot, in stabilizer, iii 96; residual fuel oil, iv 136.
Bohm & Haas Company, i 2.
Boiler-metal embrittlement, vii 254.
Boilers, ii 77.
Boiling point, average, in determination of centane value, x 394.
Borderline knock-test method, ix 327.
Boron flouride, v 188.
Bostrom, Walter — Maintenance of Orifice Meter Plates and Tubes, xi 478.
Bowles, V. O., and H. D. Noll—Small-Scale Catalytic Cracking, x 373.
Boyd, David M., Jr.—Functions and Fundamentals of Temperature in Refinery Process Control, ix 334.
Boyd, W. R., Jr.*
Bragg, B. L. III, et al—No Peace for Fractionators, xii 502.
Brenn-Chemie, vi 231.
Brown, Bruce K.*
Brown, G. G. et al—The Ethanol-Composition Diagram for the System Ethanol-Water, viii 296.
Brown Instrument Company, The, ii 70.
Bubble-plate, lower, iii 117.
Bubble point, iii 50.
Buckets, elevator, ii 50.
Buhl Foundation, viii 303.
Burke, R. E., et al—Factors Causing Lubricating Oil Deterioration in Engines, vii 280.
Burners, fuel oil, xi 461.
Business Notes*
Butane-diol, v 186.
Butadiene, physical and chemical properties, vi 230; rubber, i 6.
Butylenes, vi 202.
Butyric acid, i 7.

C

Calculation of Orifice Meter Charts by the Square-Root Planimeter Method — J. T. Cortelyou, x 418.
Calculation of Orifice Meter Coefficients for Natural Gas—George R. Forster, Jr., viii 312.
Calculation of Plate Columns for Binary Distillation by the Ponchon Method—Robert R. White, viii 299; ix 357.

*See News, Statistical and Service Features Index below.

California Natural Gasoline Association, ii 59; vi 77; vi 227; ix 353; xi 443.
Calorimetric bomb, determination of mercaptan sulphur, vi 221.
Carbide and Carbon Chemical Corporation, i 6.
Carbon black, v 195.
Carbon monoxide, v 170.
Carbon residue, fuel oils, iv 135.
Carnegie Institute of Technology, viii 305.
Casein plastics, i 7.
Catalytic cracking feed stock, ii 46; fluid, v 205; TCC, xi 459; small-scale, x 373; UOP small-scale unit, xii 497.
Catalytic dehydrogenation, iii 121.
Catalytic Development Corporation, ii 54.
Catalytic reforming, iii 123.
Catalyst elevators, ii 49.
Catalysts, x-ray diffraction, vi 223; UOP small-scale unit, xii 500.
Catalytically cracked gasoil, ii 46.
Cellulose acetate-butyrate plastics, i 7.
Cellulose acetate-propionate plastics, i 7.
Cement, acid, v 194.
Ceramic Linings for Acid Tanks—Richard Neuhaus, v 194 (see correction, Jun. 162).
Cetane index, iv 131; numbers, iv 130.
Cetane value from average boiling point and specific gravity, x 394.
Chain design, catalyst elevators, ii 49.
Charge stock, TCC process, xi 439.
Chart, M, x 415.
Charts, orifice meter, sight reading, x 415.
Chart Reading by the Integrator Method—W. J. Kennedy, x 420.
Chart records, interpreting, x 416.
Chart, square-root, x 415.
Chemical Composition and Road Antiknock Performance of Possible Postwar Motor Fuels—Jane F. Jordan, ix 327.
Chemical constitution, viscosity, v 185.
Chemical inhibitors, boiler embrittlement, vii 257.
Chemical treatment, lubricating oils, ix 342.
Chemical Utilization of Natural Gas—Benjamin Miller, v 195.
Chemicals from Natural Gas*
Chemicals from petroleum, i 4.
Chicago War Production Conference, vi 202.
Chlorine, properties of, vii 258.
Cities Service Refining Corporation, fluid catalyst units, vii 266.
Cobalt-thoria-Kieselguhr catalyst, v 171.
Coil feed stocks, ii 47.
Colline Oil Company, xi 479.
Collins, R. R., and Stanley M. Mercier—Hot-Catalyst Elevators, ii 49.
Colwell, A. T.—Fuel Requirements for Farm Tractors, i 36.
Combustion-Gas Turbine in the Houdry Process—J. E. Evans and R. C. Lassiatt, xi 461.
Combustion of Ethyl Mercaptans at Various Pressures, vi 222.
Commercial Production of Pure Hydrogen from Hydrocarbons and Steam—R. M. Reed, ix 349.
Commercial Synthesis of Toluene by Hydroforming and Recovery by Azeotropic Distillation—Fred L. Hartley, xii 519.
Commercial Values and Physical Tests of Paraffin and Micro-Crystalline Waxes—Albert E. Hickel, vi 207.
Composition of Petroleum Waxes from Western Crudes—R. W. Moulton and V. K. Loop, iv 161.
Compression Distillation—Allen Latham, Jr., xii 515.
Compressed Air Institute, vii 273.
Compressed Air, Refinery Production and Maintenance Tool—Ed. C. Powers, vii 273.
Compressibility factors, v 178.
Compression ratios, engine, i 37.
Compressor cylinder operations, effect of supercompressibility, v 151.
Compressor performance, effect of supercompressibility of natural gas, v 177.
Compressor-plant piping, vibration, ii 59.
Compressor piping, plant design, vii 259.
Condensation of olefins with aromatics, v 188.
Consistency and viscosity, fundamentals of, xii 507.
Constitution of matter, v 191.
Continental Refining Company, vi 237.
Control, automatic, ii 70.
Control laboratory, routine, iii 104.
Conversion of gas volumes into weight, viii 305.
Cooling water, catalyst elevators, ii 52.
Cooling water from trade waste, vii 271.
Cooper-Bessemer Corporation, The, vii 259.
Cooperative Fuel Research Committee, ix 337.
Corrosion, diesel fuels, iv 133.
Cortelyou, J. T.—Calculation of Orifice Meter Charts by the Square-Root Planimeter Method, x 413.
Cowan, Wm. L.—Measurement of Flow of Fluids Through Orifice Meters, ix 344.
Cracking and reforming unit, flow chart, vi 238.
Cracking stocks, ii 47.
CRF Uniontown method, ix 327.
Critical properties of hydrocarbons, xii 497.
Crude oil-natural gasoline blends, iv 143.
Crude Oil Runs to Stills*
Curves, ASTM and equilibrium flash vaporization, x 388.
Cylinder capacity, v 178.

D

Damping (vibration), ii 61.
Dean, E. W., A. A. Williams and F. E. Fisher—Determining Heat of Combustion of Gasoline, iii 126.
Dean, John C.*
Deanesly and Carlton, ii 45.
Defractive index and dielectric constants of hydrocarbons, viii 322.
Dehydration, Goleta plant, ix 353.
Dehydration of Natural Gas With Diethylene Glycol—George F. Russell, iv 139.
Dehydrogenation, catalytic, iii 121.
Design of Class 1 Pressure Vessels—E. J. Heeley, xi 467.
Design for Efficiency in a Routine Control Laboratory—W. C. Albert, iii 104.
Design of the Goleta Dehydration Plant—Richard H. Hull, ix 353.
Design and Operation of Hot-Catalyst Elevators in Thermofor Catalytic Cracking Units—Stanley M. Mercier and R. R. Collins, ii 49.
Design of Structural Details for High Towers—Jesse Yoakel, xii 513.
Desulphurization of aviation gasoline, iii 121.
Detergent compounds, v 199.
Determination of Cetane Value from Average Boiling Point and Specific Gravity—G. Vorbeck, x 394.
Determination of Mercaptan Sulphur in Calorimetric Bomb—Egbert Ditrich, vi 221.
Determination of Metals in Lubricating Oils—Louis Lykken, K. R. Fitzsimmons, S. A. Tibbets and Gerrard Wyld, x 405.
Determination of Phosphorus in Lubricating Oils—K. R. Fitzsimmons and Louis Lykken.
Development and Use of Excess-Flow Valves in Liquefied Petroleum Gas Industry—George R. Bons and T. A. St. Clair, ii 52.
Deviated flow, ii 65.
Dewaxing of diesel fuels impractical, iv 133.
Dew point, iii 90.
Dew point depression, iv 141.
Dicyclohexylhexadecane, v 186.
Dielectric constants and defractive index of hydrocarbons, viii 322.
Diesel engines, fuels for high speed, iv 129.
Diesel fuels, addition agents, iv 132; approximate relations between cetane number and physico-chemical characteristic constants, iv 131; corrosiveness, iv 133; cetane values, x 396; ignition quality, iv 130; lubricating properties, iv 133; physico-chemical properties, iv 130; viscosity and distillation range, iv 132.
Diesel index, iv 131.
Diethyl glycol, ix 353; gas dehydration, iv 139.
Diethylene glycol and natural gas, vapor-liquid equilibria between, xii 525.
Differential vaporization, ii 66.
Diffraction, x-ray, iv 154; v 191.
Dihydro-disamylanthracene, v 186.
Dihydrodiethylanthracene, v 186.
Dihydrodiotylanthracene, v 186.
Dipole moment of lubricants, viii 321.
Distillation, azeotropic, recovery of toluene, xii 519.
Distillation, binary, calculation of plate columns, Ponchon method, viii 299.
Distillation column, vacuum, laboratory, iv 161.
Distillation, compression, xii 515.
Distillation curves, x 388.
Distillation systems, simple constant take-off, ii 54.
Distillate, tractor fuel, i 36.
Dittrich, Egbert—Determination of Mercaptan Sulphur in Calorimetric Bomb, vi 221.
Duckwall, H. W., and C. C. Allen—Sulphuric Acid Extraction in Hydrocarbon-Type Analysis, ii 45.
du Pont, E. I., de Nemours & Company, i 6.
Duo-sol extraction, lubricants, ix 343.
Dynamic vibration absorber, ii 65.

E

Eastwood, S. C., et al—Liquid-Charge Technique in TCC Processing, xi 456.
Eastern States Petroleum Company, ix 334.
Eckman, Donald P.—Fundamentals in Automatic Control, ii 70.
Economics*
Effect of Supercompressibility of Natural Gas Upon Compressor Performance—Robert S. Ridgway, v 177.
Electric currents, short circuit, iii 118.
Electronics, i 25.
Electronics in Instrumentation—H. D. Middel, i 25.
Elements, periodic table of, xi 422.
Elevator buckets, ii 50.
Elevators, hot-catalyst, ii 49.
Eldorado, Kansas, vi 220.
Elliott Company (gas turbines), viii 293.
Embrittlement, boiler, causes, vii 254.
Emulsions and sludges, shale oil, vi 200.
Engine compression ratios, i 37.
Engine fuels, requirements for gasoline and high-speed diesels, iv 130.
Engineering Problems Involved in Gas-Turbine Development—W. A. Wilson, viii 293.
Enthalpy-Composition Diagram for the System Ethanol-Water—D. A. Smith, J. Kwong, G. G. Brown and R. R. White.
Enthalpy-entropy diagram for natural gas, v 178.
Equilibria, vapor-liquid, natural gas and diethylene glycol, xii 525.
Equilibrium constants, xii 497.
Equilibrium Flash Vaporization Correlation of ASTM and High-Pressure Curves—John Griswold and M. E. Klecka, x 388.
Equilibrium vaporization calculation, iii 85.
Equipment News*
Ethane, equilibrium constants of, i 14.
Ethenoid resins, i 5.
Ethanol-water, viii 296.
Ethyl cellulose plastics, i 7.
Ethyl Corporation, ix 327.
Ethylene, volatility relative to ethane, i 16.
Evans, J. E., and R. C. Lassiat, Combustion-Gas Turbine in the Houdry Process, xi 461.
Excess-flow valves in liquefied petroleum gas industry, ii 52.
Explosive mixtures, iv 145.
Extrapolation method of analysis, ii 46.

F

Fabrication Costs of Boilers, Tanks and Pressure Vessels as Affected by Plate Widths—Dr. W. G. Theisinger, ii 77.
Factors Affecting Measurement of Wet Gas—T. C. Shaw, iii 99.
Factors Causing Lubricating Oil Deterioration in Engines—R. E. Burk, E. C. Hughes, W. E. Scoville and J. D. Bartleson.
Farm tractors, i 33.
Fatigue strength, ii 64.
Fatty acids, constants, viii 323.
Fatty Acids by Oxidation of Hydrocarbons—Dr. R. Strauss, ii 73.
Fatty alcohol sulphates, v 200.
Faull, Harry A.—Sight Reading of Orifice Meter Charts, x 415.
Fearon, R. E.—Uses in Petroleum Industry for Uranium Atom, x 401.
Feed for fluid catalytic cracking, vi 205.
Fette und Seifen, ii 73; v 199.
Firth, F. G.—X-Ray Diffraction, Basic Principles and Theory, iv 154; v 191; vi 223.
Fischer-Tropsch process, v 198; reaction, v 170.
Fisher, N. E., et al—Heat of Combustion of Gasoline, iii 125.
Fissionable material, production of, xi 432.
Fitzsimmons, K. R., et al—Determination of Metals in Lubricating Oils, x 405; Determination of Phosphrous in Lubricating oils, viii 307.
Flow Diagrams:
Adsorption system, using extraneous medium, vii 249.
Adsorption system, using indigenous distillate fraction, vii 249.
Adsorption system, using indigenous gasoil fraction, vii 250.
Azeotropic distillation diagrammatic tower drawing, xii 523.
Catalyst, TCC unit, ix 339.
Combined gasoil cracking and reforming unit, vi 238.
Dehydration plant (Goleta), ix 354.
Feed preparation unit, fluid catalyst, vi 206.
Fluid catalyst cracking unit, vii 263; vii 265.
Fluid catalytic-cracking unit, vi 238.
Fluid catalytic-cracking process (color diagram)*
Fluid cracking plant, xi 434.
Gas-concentration system, vi 240.
Houdry air system, xi 462.
HF alkylation unit, vi 242.
Hydroformer diagrammatic flow sheet, xii 521.
Natural-gas dehydration, iv 139; ix 354.

*See News, Statistical and Service Features Index below.

Flow Diagrams: (Continued)
Oil-adsorption and distillation unit, iii 111.
Stabilising hook-up for finished aviation base stock, iii 98.
Two-tower stripper-dephlegmator still, iii 114.
TCC plant, liquid charge, xi 438.
TCC unit, with feed preparation, x 374.
TCC unit, reactor and kiln, xi 432.
Toluene-recovery plant, xii 522.
UOP MS-Type catalytic cracking unit, xii 498.
Flash curve, x 388.
Flash towers, metallizing, x 380.
Flash vaporization, ii 46.
Flowmeter, i 22.
Fluid catalytic cracking, xi 422; feed for, vi 295; flow chart, vi 286.
Fluid catalytic cracking unit, flow chart, vi 238; xi 434.
Fluor Corporation, The, vi 227.
Foaming a Factor in Absorber Design—H. C. Schutt, vii 249.
Foam-suppressing agents, vii 253.
Formaldehyde, i 3.
Formaldehyde resins, i 7.
Foster Wheeler Corporation, v 181; xii 530.
Four Refiners Join to Convert Common Cracking Plant to War—Paul Truesdell and W. E. Lemmen.
Forster, George H., Jr.—Calculation of Orifice Meter Coefficients for Natural Gas, viii 312.
Fractionation and Other Vaporization Processes—R. L. Huntington, Part 12, Fractionation of Binary Mixtures, i 32; Part 13, Illustrative Exercises and Problems, ii 66; Part 14, Application of the Kremser Method to Design of Oil Absorbers, iii 111; Part 15, Transportation and Storage of Crude Oil and Crude-Natural Gasoline Blends, iv 143.
Fractionating columns, laboratory, viii 314.
Fractionation of binary mixtures, i 32.
Fractionators, xii 502.
Fuel oils, carbon residue, iv 135; residual, blending, iv 135; from war equipment, xi 450; stability classification chart, Navy, iv 138; stability test, Navy specifications, iv 137; sulfur content, iv 135.
Fuel Requirements for Farm Tractors—A. T. Colwell, i 35.
Fuels for High-Speed Diesel Engines—V. A. Kalichevsky, iv 129.
Fugacity coefficient for hydrocarbon vapor, xii 486.
Functions and Fundamentals of Temperature in Refinery Process Control—David M. Boyd, Jr., ix 334.
Fundamentals in Automatic Control—David P. Eckman, ii 70.
Fundamentals of Consistency and Viscosity—J. J. Bikerman, xii 507.
Fundamental Gas Laws and Their Application to Orifice Metering—Edgar Valby, vii 267.
Fundamentals of Orifice-Meter Measurement—J. B. Taylor, Jr., vii 262.
Fundamentals of Wetting and Detergent Compounds—Dr. J. Hetzer, v 199.

G

Gallaher, J. A.—Welding, Lining Pressure Vessels, iv 146.
Garner, Dr. James B., isobutylene research, ii 55.
Gas, analysis, i 26; measurement of, wet, iii 92; metering, vii 247; laws, application to orifice metering, vii 267; thermal conductivity, i 27; turbine, engineering problems, viii 293; volume, conversion to weight, viii 305.
Gas conservation system, flow chart, vi 240.
Gases, hydrocarbon, measurement of flow, iii 92; pseudo-critical properties, v 180.
Gasoil, catalytically cracked, ii 46; hydrocarbon-type analysis, ii 45; processing, ii 47.
Gasoline, heat of combustion, iii 125; postwar, ix 337; sweetening, vi 250.
General Electric Company, i 25; iii 113; xi 451.
General Petroleum Corporation, xi 478.
German Gold and Metals Separating Company, vi 221.
Gilliland, E. R.*
Girdler Corporation, The, ix 349.
Glen Davis, New South Wales, vi 302.
Gohr, E. J., et al—High-Capacity Operations on Fluid Cracking Units, xi 423.
Goodman, Clark—Petroleum vs. Plutonium, xi 427.
Greases, lubricating, classification, x 397; pressure viscosity and consistency, vii 276.
Griswold, John, and M. E. Klecka—Equilibrium Flash Vaporization of ASTM and High-Pressure Curves, x 388.
Groll, H., fractionating column, viii 316.
Gulf Research & Development Company, i 1.

H

Hamman Oil & Refining Company, iii 95.
Hancock Oil Company of California, The, iv 135.
Hanson, D. N., and C. O. Hurd—Heat Content of Petroleum Fractions, iv 127.
Harrington, P. J., et al—No Peace for Fractionators, xii 502.
Harrison Oil Company, iii 95.
Hartley, Fred L.—Commercial Synthesis of Toluene by Hydroforming and Recovery by Azeotropic Distillation, xii 519.
Hastelloy, iv 146.
Haynes Stellite Company, iv 146.
Heat Content of Petroleum Fractions—D. N. Hanson and C. O. Hurd, iv 127.
Heat of combustion of gasoline, iii 125.
Heeley, E. J.—Design of Class 1 Pressure Vessels, xi 467.
Heinemann, Heinz*
Helium, v 195.
Hemmingway, H. L.—Oil for the Postwar Car, xi 473.
Hetzer, J.—Fundamentals of Wetting and Detergent Compounds, v 199.
HF alkylation unit, flow chart, vi 243.
Hickel, Albert E.—Commercial Values and Physical Tests of Paraffin and Micro-Crystalline Waxes, vi 207; Identification of Type and Classification of Lubricating Greases by Visual and Photographic Means, x 397; Pressure Viscosity and Consistency of Greases, vii 276.
High-Capacity Operations on Fluid Cracking Units—E. V. Murphree, E. J. Gohr, H. Z. Martin, H. J. Ogorsaly and C. W. Tyson, xi 423.
High-speed diesel engines, fuel, iv 129.
High towers, structural details, xii 513.
Hilberath, Von Dr. F.—Advances in the Use of Laboratory Fractionating Columns, viii 314.
Hille, L. V.—Metallizing Refinery Flash Towers, x 380.
Hill, J. Bennett, et al—Peacetime Fuel Oils from War Equipment, xi 450.
Hirsch, R. W.—Tide Water's Special Unit Prepares Feed for Fluid Catalytic Cracking, vi 295.
Horsepower, gas compression, v 182.
Houdry air system, flow diagram, xi 462.
Houdry Process, combustion-gas turbine in, xi 461.
Houdry Process Corporation, x 372; xi 436; xi 461.
Hughes, E. C., et al—Factors Causing Lubricating Oil Deterioration in Engines, vii 280.
Hull, Richard R.—Design of Goleta Dehydration Plant, ix 353.
Humble Oil & Refining Company, xi 425.
Huntington, R. L.—see "Fractionation and Other Vaporization Processes."
Huntington, R. L., et al—Vapor-Liquid Equilibria Between Natural Gas and 95-Percent Diethylene Glycol, xii 525.
Hurd, C. O., and D. N. Hanson—Heat Content of Petroleum Fractions, iv 127.
Hyatt, James Wesley, i 2.
Hydrocarbon gases, pseudo-critical properties, v 180; measurement of flow, iii 92.
Hydrocarbon Phase Equilibrium Calculations—C. G. Kirkbride, i 11.
Hydrocarbons, critical properties of, xii 482; dielectric constant and defractive index, viii 322; oxidation of fatty acids, ii 78.
Hydrocarbon-type analysis, gasoil, ii 46.
Hydrochloric acid, i 33.
Hydrofluoric acid, corrosive properties, vi 203; handling of, vi 203; regeneration, vi 203.
Hydroformer diagrammatic flow sheet, xii 521.
Hydroforming, synthesis of toluene, xii 519.
Hydrogen, analysis of purified, ix 352; from hydrocarbons and steam, ix 349.
Hydrogen sulphide, toxicity to men, viii 311.

I

Identification of Type and Classification of Lubricating Greases by Visual and Photographic Means—Albert E. Hickel.
I. G. Company, fractionating columns, viii 317.
Ignition quality of diesel fuels, iv 136.
Illinois Institute of Technology, v 170.
Imperial Chemical Industries, Ltd., xi 467.
Increasing Propane Recovery in Existing Natural Gasoline Absorption Plants—F. W. Bell, vi 227.
Indicators, common pH range and color change, vi 236.
Industrial and Engineering Chemistry, viii 305.
Inhibitors, boiler embrittlement, vii 257.
Inspection and Maintenance of Refinery Safety Valves—E. R. Wilkinson, vii 245.
Institute of Gas Technology, v 170; v 195.
Institution of Mechanical Engineers, xi 467.
Instrumentation, electronics in, i 25; measurement of solids in TCC process, ix 338; process control, ix 334.
Integrator method, chart reading by, x 420.
Isobutane, ii 55; volatility realtive to ethane, i 19.
Isobutyl alcohol, ii 55.
Isobutylene, chemical properties, ii 58; liquid, specific gravity, ii 56; physical and chemical properties, ii 55; vapor pressure, ii 57.
Isomerization, iii 123.
Iso-octane, iii 122.
Isopentane, iii 122.
Isopropyl ether, iii 122.
Isotropes of all elements, xi 429.

J

Jantzen, E., fractionating column, viii 314.
Jeffrey Manufacturing Company, ii 49.
Jordan, Jane F.—Chemical Composition and Road Antiknock Performance of Possible Postwar Motor Fuels, ix 337.
Jorgensen, S. M.—Pressure Vessel Design Calculations, x 381.

K

Kadmer, E. H.—Oiliness and Dipole Moment of Lubricants, viii 321.
Kalichevsky, V. A.—Fuels for High-Speed Diesel Engines, iv 129; Manufacture of Lubricating Oils, ix 342.
Kansas, distillate fuel tests, i 37.
Kelley, A. E.—Measurement of Solids in TCC Process, ix 338.
Kellogg, The M. W. Company, vii 262.
Kennedy, W. J.—Chart Reading by the Integrator Method, x 420.
Kirkbride, C. G.—Method for Predicting Phase Equilibrium Constants, xii 486; Proposed Simplified Method for Hydrocarbon Phase Equilibrium Calculations, i 11.
Kiln, TCC, xi 439.
Klecka, M. E., and John Griswold—Equilibrium Flash Vaporization Correlation of ASTM and High-Pressure Curves, x 388.
Klein, Stage and Schultze fractionating column, viii 316.
Knock-Test Method, Borderline, ix 327.
Kock and Hilberath fractionating column, viii 314.
Kogasin, composition of, v 171; processing to produce gasoline, v 171; synthesis at atmospheric pressure, v 171.
Komarewsky, V. I.—Production of Synthetic Liquid Fuel from Natural Gas, v 170.
Kremser method, iii 111.
Kuong, J., et al—The Enthalpy-Composition Diagram for the System Ethanol-Water, viii 296.

L

Laboratory blending of residual fuel oil, iv 135.
Laboratory Essential in Blending Residual Fuel Oil—F. LaVerne Smith, iv 135.
Laboratory evaluation of lubricating oil deterioration in engines, vii 280.
Laboratory fractionating columns, vii 314; routine control, iii 104.
Lake Charles, fluid catalyst units, vii 266.
Larsen, Howard W.*
La Society Chemique de France, v 185.
Lassiat, R. C., and J. E. Evans—Combustion-Gas Turbine in the Houdry Process, xi 461.
Latham, Allen—Compression Distillation, xii 515.
Lead diethyldichloride, diphenyldimethyl, diphenydibromide, ethylxanthate, tetraethyl, tetraphyenyl, thio-acetate, tri-p-xylyl, iii 130.
L'Ecole Normale Superieure, v 185.
Lemmen, W. E., and Paul Truesdell—Four Refiners Join to Convert Common Cracking Plant to War, vi 237.
Liners, refinery vessels, v 172.
Lining pressure vessels with alloys, iv 146.
Liquefied Petroleum Gas*
Liquefied petroleum gas, excess-flow valves, ii 55.
Liquid-Charge Technique in TCC Processing—T. P. Simpson, S. C. Eastwood and H. G. Shimp, 436.
Little, Arthur D., Inc., xii 516.
Ljungstrom Company, gas turbine, viii 294.
Logan, L. J.*
Loop, V. E., and R. W. Moulton—Composition of Petroleum Waxes from Western Crudes, iv 141.
Louisiana Division Standard Oil Company of New Jersey, vii 245.
Lubricating greases, classification, x 397.
Lubricating oil, deterioration in engines, vii 280; determination of metals in, x 405; determination of phosphorus in, viii 307; man-

*See News, Statistical and Service Features Index below.

ufacture of, ix 342; postwar, xi 483; removal of constituents, ix 343.
Lubricating oil fractions, composition, ix 343.
Lubricating properties of diesel fuels, iv 123.
Luger, K. E.—Procedure for Application of Stainless-Steel Strip Liners to Refinery Vessels in the Field, v 173.
Lubrication, perfect, v 185.
Lubricants, hydrocarbon synthesis, v 187; oiliness and dipole moment, viii 321.
Ludwig, Ernest E.—Nozzle-Opening Reinforcement for Unfired Pressure Vessel Design, i 22.
Lukens Steel Company, ii 77.
Lummus Company, The, ii 49; x 373.
Lykken, Louis, et al—Determination of Metals in Lubricating Oils, x 405; Determination of Phosphorus in Lubricating Oils, viii 307.
Lysholm compressor, viii 295.

M

Machem, Roy W.—The Small Refiner in War Production, iii 95.
Madsen, Neils—Modified Aniline-Point Apparatus for Dark Oils, xii 530.
Magnolia, Arkansas, viii 287.
Magnolia Petroleum Company, viii 287; iv 129; ix 342.
Maintenance of Mercury-Type Orifice Meters—Melroy Welch, xii 531.
Maintenance of Orifice Meter Plates and Tubes—Walter Bostrom, xi 478.
Management from the Superintendent's Standpoint—O. B. Wendeln, v 165; vi 132.
Manufacture of Aviation Gasoline—Dr. Nickolaus Mayer, iii 120.
Manufacture of Lubricating Oils—V. A. Kalichevsky, ix 342.
Mapstone, George E.—Shale Oil Emulsions and Sludges, vi 209.
Martin, H. Z., et al—High-Capacity Operations on Fluid Cracking Units, xi 423.
Massachusetts Institute of Technology, xi 427.
Matter, constitution of, v 191.
Maximum boiling point mixtures, i 33.
Mayer, Nickolaus — Manufacture of Aviation Gasoline, iii 120.
M chart, x 415.
McIlvaine, Mark—Temperature Determinations in Orifice Meter Runs, xi 479.
McReynolds, Earl E.—New Method for Equilibrium Vaporization Calculations, iii 85.
Measurement of Flow of Fluids Through Orifice Meters, With Particular Reference to the Measurement of Liquids and Steam—Wm. L. Cowan, ix 363.
Measurement of Flow of Hydrocarbon Gases—Howard Ten Broeck, iii 92.
Measurement, gas, orifice meter, vii 289.
Measurement of Solids in TCC Process—A. E. Kelley, ix 338.
Measurement of wet gas, iii 90.
Mechanism of Flow in Fluid-Catalyst Cracking—Henry P. Wickham, vii 263.
Mellon Institute, butadiene, vi 230; isobutylene, ii 55.
Melting point, molecular weight as function, iv 163; refractive index, iv 162; specific gravity, iv 163.
Mendius, William — Alkylation — Backbone of Aviation Gasoline, vi 201.
Mercaptan sulphur, determination in calorimetric bomb, vi 221.
Mercier, Stanley M. and R. R. Collins—Hot Catalyst Elevators, ii 49.
Metallizing Disc Valves and Seats Extends Service Life—Elton Sterrett, viii 319.
Metallizing Refinery Flash Towers—L. V. Hile, x 386.
Metals in lubricating oils, determination of, x 405.
Metcalfe, Lyle S.*
Meter Course, see Southern California Meter Association.
Meter, orifice, calculation of charts by square-root planimeter method, x 413; sight reading of charts, x 415; orifice, maintenance, xiii 531; natural gas coefficients, viii 312.
Meter, pH, i 25.
Metering, gas, vii 287.
Meters, orifice, ix 363.
Methane conversion equilibrium data, ix 351.
Methane-steam reaction, equilibrium compositions, ix 351.
Methane, volatility of relative to ethane, i 15.
Method for Predicting Phase Equilibrium Constants—C. G. Kirkbride, xii 485.
Michigan, University of, viii 296, 299; ix 357.
Micro-crystalline waxes, commercial values and physical tests, vi 207.
Middel, H. D.—Electronics in Instrumentation, i 25.
Miller, Benjamin—Chemical Utilization of Natural Gas, v 193.

*See News, Statistical and Service Features Index below.

Modified Aniline-Point Apparatus for Dark Oils—Neils Madsen, xii 530.
Mohawk Petroleum Corporation, viii 303.
Molecular weight as function of melting point, iv 162.
Molecules with lubricant properties, v 185.
Monsanto Chemical Company, i 7.
Motion, free harmonic, ii 60.
Motor fuels, postwar, ix 327.
Moulton, R. W., and V. K. Leap—Composition of Petroleum Waxes from Western Crudes, iv 161.
Muller, J., and D. Wandycz—A New Method to Determine Paraffin Wax in Asphalt, xi 458.
Murphree, E. V., et al—High-Capacity Operations on Fluid Cracking Units, xi 423.

N

National Oil Pty., Ltd., vi 209.
Natural gas, chemical utilization, v 195; dehydration with diethylene glycol, iv 139; dehydration, plant flow diagram, iv 139; enthalpy-enthropy diagram, v 178; gasoline from, i 33; Goleta dehydration plant, ix 353; orifice meter coefficients, viii 312; reserves, v 170; supercompressibility, v 177; synthetic liquid fuel, v 170; volume used for chemicals, v 193; vapor-liquid equilibria between and diethylene glycol, xi 525.
Natural Gas-Natural Gasoline*
Natural gasoline-crude oil blends, iv 143.
Natural gasoline plant, layout, viii 283; increasing propane recovery, vi 227; safety in, viii 287.
Naval boiler and turbine laboratory heater, iv 137.
Navy fuel oil stability classification chart, iv 136.
Navy specification for fuel oil stability, iv 137.
N-Butane, volatility relative to ethane, i 20.
N-Butylthentriacontane, v 186.
Nebraska, farm fuel test data, i 37.
Neohexane, iii 122.
Neuhaus, Richard—Ceramic Linings for Acid Tanks, v 194.
Neutrons, sources of, xi 430.
New Method for Equilibrium Vaporization Calculation—Earl E. McReynolds, iii 85.
New Method to Determine Paraffin Wax in Asphalt, J. Muller and D. Wandycz, xi 458.
New South Wales, vi 209.
Nol , H. D., and V. O. Bowles—Small-Scale Catalytic Cracking.
Nomographic Analysis, ii 48.
No Peace for Fractionators—P. J. Harrington, B. L. Bragg III and C. O. Rhys, Jr., xii 502.
Nickel as catalyst, v 171.
North American Philips Company, iv 154; v 191; vi 223.
Northrup, H. B.—Personnel Training for Refinery Workers, x 400.
Nozzle Opening Reinforcement for Unfired Pressure Vessel Design—Ernest E. Ludwig, i 22.
Nuclear fission, xi 430.

O

Octane-n, v 186.
Octane Number, ix 327.
Ogorzaly, H. J., et al—High-Capacity Operations on Fluid Cracking Units, xi 423.
Oil u. Kohle, viii 321; viii 314; x 394.
Oil City, Pennsylvania, vi 237.
Oil for the Postwar Car—H. L. Hemmingway, xi 463.
Oiliness, viii 321.
Oiliness and Dipole Moment of Lubricants—Dr. E. H. Kadmer, viii 321.
Oils, lubricating, determination of metals in, x 405.
Oklahoma, University of, i 53; iv 143; iv 139; xii 535.
Olefins, condensation with aromatics, v 188.
Olefins, polymerization of, v 187.
One-Pass Cracked Stock, ii 46.
Operating Procedure for Determining Heat of Combustion of Gasoline, E. W. Dean, A. A. Williams and N. E. Fisher, iii 125.
Orifice Meter Fitting, The—Garney B. Reece, xi 480.
Orifice meter, vii 267; vii 289; maintenance, xii 531; maintenance of plates and tubes, xi 478; runs, temperature determinations in, xi 479; unit coefficients for, xi 477.
Orifice meters, ix 363.
Orifice meter coefficients for natural gas, viii 312.
Orifice meter charts, calculation by square-root planimeter method, x 413, sight reading of, x 415.
Orifice meternig, application of fundamental gas laws to, vii 287.
Oxidation of hydrocarbons, fatty acids, ii 73.
Oxy-Acetylene welding, safe practice in, xii 493.

P-Q

Pacific Lighting Corporation, ix 353; xi 477.
Paraffin, commercial values, tests, vi 207.
Paraffin and micro-crystalline waxes, vi 207.
Paraffin wax, iv 161; in asphalt, determining, xi 458.
Paraflow, v 183.
Parker, F. D.—Peacetime Utility of Wartime Petroleum Refining Processes, xi 443.
Patents, Digest*
Peacetime Fuel Oils from War Equipment—Arthur E. Pew, Jr., J. Bennett Hill and John R. Bates, xi 450.
Pennsylvania State College, x 400.
Peacetime Utility of Wartime Petroleum Refining Processes—F. D. Parker, xi 443.
Pennzoil Company, The, vi 237.
Per-glycerin, viscosity, v 187.
Persian Gulf, viii 325.
Personnel Training for Refinery Workers—H. B. Northrup, x 400.
Peters, Otto, Sr.*
Petro-chemical plant.*
Petroleum and natural gas as material for plastics, i 4.
Petroleum fractions, heat content, iv 127.
Petroleum sulphonates, v 200.
Petroleum vs. Plutonium—Clark Goodman, xi 427.
Petroleum waxes, iv 161.
Pew, Arthur E., et al—Peacetime Fuel Oils from War Equipment, xi 450.
pH meter, i 25.
Phase Equilibria, correlation for calculation of, i 13.
Phase equilibrium constants, method for predicting, xii 485.
Phenolic resins, i 7.
Phenylbenzylheptadecane, v 186.
Phillips Petroleum Company, ii 52; x 386.
Phosphorus in lubricating oils, determination, viii 307.
Photoelectric potentiometer, i 29.
Physical and Chemical Properties of Butadiene, vi 230.
Physical and Chemical Properties of Isobutylene, ii 55.
Physico-chemical properties, diesel fuel, iv 130.
Piganiol, M.—Synthesis of Molecules With Lubricant Properties, v 185.
Piping, compressor plant design, vii 259.
Piping, vibration in compressor plant, ii 59.
Pittsburgh-Des Moines Steel Company, ii 55; vi 230.
Planimeter, square-root, calculation of orifice meter charts, x 413.
Plant Design of Compressor Piping — B. C. Thiel, vii 259. (See correction, Sept. 144.)
Plastics (from natural gas), v 193.
Plastics from Petroleum—B. H. Weil, i 1.
Plastics history, i 2.
Plastics, properties of, i 10.
Plastic terminology, i 2.
Plate Columns, calculation for binary distillation, Ponchon method, viii 299; ix 357.
Plate width, effect on fabrications cost, ii 77.
"Plexiglas," i 2.
Plutonium, xi 427.
Pedbielniak arrangement for distillation at low temperature, viii 317.
Poland.*
Polyethylene, i 6.
Polymerization of olefins, v 187.
Polystyrene, i 7.
Polystyrene resins, i 6.
Polyvinyl resins, i 5.
Polyvinylidene chloride resins, i 6.
Ponchon method, calculation of plate columns for binary distillation, viii 299; plate columns for binary distillation, ix 357.
Potentiometer, i 29.
Four point, residual fuel oils, iv 135.
Power and fuel consumption, tractors, i 38.
Powers, Ed. C.—Compressed Air Refinery Production and Maintenance Tool, vii 273.
Pressure, effect upon yields of hydrocarbon products, v 171.
Pressure (instruments), i 26.
Pressure Vessel Design Calculations — S. M. Jorgensen, x 381.
Pressure vessels, design of Class 1, xi 467.
Pressure Viscosity and Consistency of Greases—Albert E. Hickel, vii 276.
Pressure waves, ii 65.
Preventing Boiler Metal Embrittlement—John Drew Betz, vii 254.
Procedure for Application of Stainless-Steel Strip Liners to Refinery Vessels in the Field—K. E. Luger, v 173.
Process control, temperature in, ix 334.
Production of Synthetic Liquid Fuel from Natural Gas—V. I. Komarewsky, v 170.
Propane and steam, heats of reaction, ix 351.
Propane extraction, effect of increased meial oil rate on, vi 227.
Propane extraction, effect of refrigeration of oil and gas to absorber on, vi 228.
Propane, increasing recovery, vi 227.

Propane, volatility relative to ethane, i 16.
Propylene, volatility relative to ethane, i 17.
Pseudo-critical properties of hydrocarbon gases, v 180.
Pulsating flows, gas, iii 100.
The Pure Oil Company (metallising valves), viii 319; xi 453.
Pyrometry, radiation, i 29.
Pyrotron, i 31.
Quaker State Oil Refining Company, vi 237.

R

Radiation pyrometry, i 29.
Radioactivity, xi 430.
Ras Tarura refinery, viii 325.
Reactor kiln section, TCC unit (sketch), x 373.
Recycle stocks, ii 47.
Reece, Gurney B., The Orifice Meter Fitting, xi 480.
Reed, R. M.—Commercial Production of Pure Hydrogen from Hydrocarbons and Steam.
Refined Products, Production*
Refining capacity, U. S. distribution, xi 444.
Refinery process control, temperature in, ix 334.
Refinery safety valves, inspection and maintenance, vii 245.
Reflux ratio, effect on number of trays, i 34.
Reid, L. S., et al—Vapor-Liquid Equilibria between Natural Gas and 95-Percent Diethylene Glycol, xii 525.
Removing Undesirable Fractions from Rich Oil Lessens Load on Still and Atmospheric Condensers, iii 119.
Residual fuel oil, blending, iv 135.
Residual fuel oils, pour point, iv 135; viscosity, iv 136.
Resins, molecular structure, i 3; raw material, i 3; synthetic, i 5; U. S. production, synthetic, i 8.
Resistance thermometry, i 29.
Rhys, C. O., Jr., et al—No Peace for Fractionators, xiii 502.
Rich oil, iii 110.
Richfield Oil Corporation, ii 59; vii 267.
Ridgeway, Robert S.—Effect of Supercompressibility of Natural Gas Upon Compressor Performance, v 177.
Ring analysis, ii 45.
Road antiknock performance of postwar motor fuels, ix 327.
Road testing of fuels, ix 327.
Robinson, M. P.—Water Treatment an Important Feature in High-Octane Processing, ix 347.
Role Played by the Small Refiner in War Production—Roy W. Machem, iii 95.
Rook, C. G., Jr.—Talco Refinery Trade-Waste Treating Purifies Water for Cooling, vii 271.
Rubber, synthetic (natural gas), v 197.
Russell, George F.—Dehydration of Natural Gas With Diethylene Glycol, iv 139.
Russell, George F., et al—Vapor-Liquid Equilibria Between Natural Gas and 95-Percent Diethylene Glycol, xii 525.
Russia, i 35.
Ryan, Paul.*

S

Sabatier synthesis, v 171.
Safe Practices in Natural Gasoline Plants—Don Attaway, viii 287.
Safe Practice in Oxy-Acetylene Welding—Don Attaway, xii 493.
Safety in Arc Welding—R. F. Wyer, xi 481.
Safety, natural gasoline plants, viii 287.
Safety valves, inspection and maintenance, vii 245.
"Saran," i 8.
Saudi Arabia, viii 325.
Schutt, H. C.—Foaming a Factor in Absorber Design, vii 249.
Science and Technology Abstracts.*
Scovill, W. E., et al—Factors Causing Lubricating Oil Deterioration in Engines, vii 250.
Sensitivity as a criterion of fuel quality, ix 331.
Shaft, catalyst elevator temperature, ii 51.
Shale Oil Emulsion and Sludges—George E. Marstone, vi 209.
Shaw, T. C.—Factors Affecting Measurement of Wet Gas, iii 99.
Shell Development Company, x 405; iv 137; viii 307.
Shell Oil Company, Wood River fluid units, vii 265.
Shelton, E. R., viii 303.
Shimp, H. G., et al—Liquid-Charge Technique in TCC Processing, xi 436.
Short Circuit Currents in Industrial Plants—D. L. Beeman, iii 118.
Sight Reading of Orifice Meter Charts—Harry A. Faull, x 415.

*See News, Statistical and Service Features Index below.

Signal Oil & Gas Company, vi 269.
Sigwart, K., fractionating column, viii 317.
Simple Constant Reflux Take-Off for Distillation Systems—John C. Snyder and Walter Steuber, ii 34.
Simpson, T. P., et al—Liquid-Charge Technique in TCC Processing, xi 436.
Sinclair Refining Company, vi 261.
Sinclair, Wyoming, vi 261.
Skelly Blends Gasoline Before Sweetening, vi 220.
Skelly Oil Company, vi 220.
Sliding Bearings for Hot Towers and Tanks—Wesley H. Blank, iii 103.
Small-Scale Catalytic Cracking—H. D. Noll and V. O. Bowles, x 373.
Small-Scale Fluid-Type Catalytic Unit Designed—N. K. Anderson and M. J. Sterba, xii 497.
Smith, D. A., et al—The Enthalpy-Composition Diagram for the System Ethanol-Water, viii 296.
Smith, T. X. M.—Unit Coefficient for Orifice Meters, xi 477.
Smith, F. LaVergne—The Laboratory Is Essential in Blending Residual Fuel Oil, iv 135.
Snyder, John C., and Walter Steuber—Simple Constant Reflux Take-Off for Distillation Systems, ii 34.
Soaps, v 199.
Socony-Vacuum Oil Company, iii 92; xi 436.
Southern California Meter Association Meter Course, vii 267; vii 269; viii 313; x 415; xi 477; xii 531.
Southern California Meter Association, ix 363; ix 335.
Southern Counties Gas Company, x 415; x 418; xi 430.
Southport Petroleum Company, vii 271.
South Texas Section, American Institute of Chemical Engineers, ix 349.
Specific heats of petroleum fractions, iv 127.
Specific gravity as a function of melting point, iv 163.
Specific gravity, determination of cetane value, x 394.
Specific gravity of isobutylene liquid, ii 56.
Specific gravities and vapor pressures, ii 55.
Specifications, tractor fuels, i 41.
Spectrometer, X-Ray diffraction, iv 153.
Spectrophotometer, i 25.
Springs (in Instruments), i 26.
Sprockets, catalyst elevator, ii 50.
Square-root, or L-10 chart, x 415.
Square-root planimeter method, calculation of orifice meter charts, x 413.
Stabilizer, hot blending in, iii 96.
Stabilizer, rich oil, iii 110.
Standard Oil Company of California, v 177.
Standard Oil Company of California (Arabia), viii 325.
Standard Oil Company of New Jersey, Louisiana Division, iii 104; vii 245.
The Standard Oil Company (Ohio), vii 274; vii 280.
Standard Oil Development Company, iii 125; xi 433; xii 503.
Statistics*
St. Clair, T. A., and George R. Benz—Development and Use of Excess-Flow Valves in Liquefied Petroleum Gas Industry, ii 52.
Sterba, M. J. and N. K. Anderson—Small-Scale Fluid-Type Catalytic Unit Designed, xii 497.
Sterbutzel, G. A.—(co-author) Thermobarometer, viii 305.
Stereo-isomers, i 32.
Sterrett, Elton—Metalizing Disc Valves and Seats Extends Service Life, viii 319.
Steuber, Walter, and John C. Snyder—Simple Constant Reflux Take-off for Distillation Systems, ii 34.
Stills and Towers Take Some Space From Sand Dunes on Shore of the Persian Gulf, viii 325.
Stocks, coil feed, ii 47.
Stocks, recycle, ii 47.
Stocks, Refined Oils*
Stocks, thermal cracking fresh feed, ii 47.
Stone & Webster Engineering Corporation, vii 249.
Strauss, Dr. R.—Fatty Acids by Oxidation of Hydrocarbons, ii 73.
Stress, piping, ii 60.
Stripper calculations, iii 113.
Structural Details for high towers, xii 513.
Stuchell, Robert M.—Isobutylene research, ii 55.
Styrene, i 8.
"Styron," i 8.
Sulfur content of fuel oils, iv 135.
Sulfuric Acid Extraction in Gasoil Hydrocarbon-Type Analysis—C. C. Allen and H. W. Duckwall, ii 45.
Sulphic acids of aliphatic hydrocarbons, v 199.
Sulphur, mercaptan, determination in calorimetric bomb, vi 231; removal from aviation gasoline, iii 124.
Sulphuric acid, catalyst, iii 123.
Sun Oil Company, xi 450.
Supercompressibility factor, iii 101; of natural gas, v 177; effect upon compressor-cylinder operations, v 181.
Superintendent's Viewpoint, Management, v 165.
Supports, pipe, ii 62.
Sweetening gasoline, vi 220.
Synthesis of Molecules With Lubricant Properties—M. Piganiol, v 185.
Synthesis (see plastics); heavy colloidal particles, v 189; of hydrocarbon lubricants, v 187; of hydrocarbons, v 170; middle pressure, v 171; of toluene by hydroforming, xii 519; of viscous compounds, v 187.
Synthetic liquid fuel from natural gas, v 170.
Synthetic resins, i 5.

T

Talco Asphalt and Refining Division, vii 271.
Talco Refinery Trade-Waste Treating Purifies Water for Cooling—C. G. Rook, Jr., vii 271.
Tanks, ii 77; acid, ceramic linings, v 194; hot, bearings, iii 103.
Taylor, J. B., Jr.—Fundamentals of Orifice Meter Measurement, vii 269.
TCC process, xi 436; plant flow diagram, xi 438.
Temperature Determinations in Orifice Meter Runs—Mark McIlvaine, xi 479.
Temperature, hot catalyst elevator, ii 51; instruments, i 28; in refinery process control, ix 334; spontaneous ignition of gasoline, iii 130.
Ten Broeck, Howard—Measurement of Flow of Hydrocarbon Gases, iii 93.
Tertiary butyl alcohol, ii 55.
Tetraethyl lead, iii 120.
Tetraethyl lead, postwar gasoline, ix 331.
The Texas Company (Arabia), viii 325.
The Texas Company, viii 312; Los Angeles refinery, ix 347.
Texas, University of, x 388.
Theisinger, Dr. W. G.—Fabrication Costs of Boilers, Tanks and Pressure Vessels as Affected by Plate Widths, ii 77.
Thermal Cracking Fresh Feed Stock, ii 47.
Thermal Conductivity of gas, i 27.
Thermobarometer—Ernst Berl, W. G. Berl and G. A. Sterbutzel, viii 305.
Thermocouple, i 28.
Thermofor catalytic cracking, xi 436; sketch of reactor kiln section, x 373; small-scale, x 373; elevators for, ii 49; catalyst flow sheet, ix 339; measurement of solids in, ix 338.
Thermometry, resistance, i 29.
Thiel, B. C.—Plant Design of Compressor Piping, vii 259.
Thompson Aircraft Products Company, i 36.
Thompson Products, Inc., i 36.
Tibbetts, S. A., et al—Determination of Metals in Lubricating Oils, x 405.
Tide Water Associated Oil Company, vi 206.
Tidewater's Special Unit Prepares Feed for Fluid Catalytic Cracking—R. W. Hirsch, vi 205.
Toluene, synthesis by hydroforming and recovery by azeotropic distillation, xii 519; recovery plant flow sheet, xii 521.
Torque amplifier, i 26.
Tower design changes, xii 502.
Towers, flash, metallizing, x 386; high, structural details; sliding bearings, iii 103.
Tractor fuel, i 36; specifications, i 41.
Transportation and Storage of Crude Oil and Crude-Natural Gasoline Blends, iv 143.
Treating, trade waste, vii 271.
Truesdell, Paul, and W. E. Lammen—Four Refiners Join to Convert Common Cracking Plant to War, vi 237.
Turbine, gas, engineering problems, viii 293; combustion-gas in Houdry process, xi 461.
Turbocharger, viii 294.
Turbo-compressors in refinery service, xi 461.
Turkey-red oils, v 199.
Two Crudes Blended While Charging to Main Column, viii 303.
Tyson, C. W., et al—High-Capacity Operations on Fluid Cracking Units, xi 423.

U

Union Oil Company of California, ix 338; ix 363; xii 519.
Uniontown method, ix 338.
Unit Coefficients for Orifice Meters—T. K. M. Smith, xi 477.
Universal Oil Products Company, vi 237; small-scale catalytic unit, xii 497.
UOP MS-type catalytic cracking unit, xii 497.
Uranium atom, uses in petroleum industry for, x 401.
Urea-formaldehyde resins, i 7.
Uses in Petroleum Industry for Uranium Atom—R. E. Fearon, x 401.

V

Vacuum distillation column (lab) iv 161.
Valby, Edgar—Fundametal Gas Laws and Their Application to Orifice Metering, vii

Valves, metallic, viii 219; safety, inspection and maintenance, vii 246.
Vapor heat contents at one atmosphere, iv 127; correction to, iv 127.
Vapor-Liquid Equilibria Between Natural Gas and 95-Percent Diethylene Glycol—George F. Russell, L. S. Reed and R. L. Munnington, xii 535.
Vapor-liquid equilibrium curves, i 32.
Vapor pressure of isobutylene, ii 57.
Vapor Pressures and Specific Gravity, ii 55.
Vaporization, differential, ii 66.
Vaporization, Equilibrium Calculation, iii 86.
Vaporization, flash, ii 66.
Vessels, pressure, ii 77; class 1, design, xi 467; strip liners, v 173; unfired pressure, i 22.
Vibration in Pressure-Plant Piping—M. L. Arnold, ii 59.
Vinyl resins, i 8.
Viscosity, xii 507; and chemical constitution, v 185; and distillation rate, diesel fuels, iv 132; of per-glycerine, v 187; residual fuel oils, iv 136.
Viscous compounds, synthesis of, v 187.
Vlugter, Waterman and van Westen, ii 45.
Vocational-technical training, x 400.
Verberg, G.—Determination of Cetane Value from Average Boiling Point and Specific Gravity, x 394.

W

Wandyes, D., and J. Muller—A New Method to Determine Paraffin Wax in Asphalt, xi 459.
Wartime processes available for peacetime operations, xi 444.
Water Analysis Conversion Factors, iii 117.
Water-ethanol fractionation, i 32.
Water gas, ix 352.
Water, treating refinery waste, vii 271.
Water Treatment an Important Feature in High-Octane Processing—M. P. Robinson, ix 347.
Wax, paraffin, commercial uses, vi 208.
Waxes, petroleum, iv 181.
Weil, B. H.—"Plastics from Petroleum," i 1.
Welch, Helen—Maintenance of Mercury-Type Orifice Meters, xii 531.
Welded pressure vessels, xi 467.
Welding, v 172; arc, safety in, xi 481; alloy linings in vessels, iv 146; oxy-acetylene, safety, xii 493.
Welding Corrosion-Resistant Alloys To Protect Process Equipment, and Technique of Lining Pressure Vessels—J. A. Gallaher, Haynes Stellite Company, Chicago, Illinois, iv 146.
Wendeln, O. B.—Management from the Superintendent's Viewpoint (Part 1), v 165; Management from the Superintendent's Viewpoint (Part 2), vi 233.
Wetting compounds, v 199.
White, Robert R.—Calculation of Plate Columns for Binary Distillation by the Ponchon Method, viii 299; ix 357; (co-author) The Ethanol-Composition Diagram for the System Ethanol-Water, viii 266.
Wilson, Dr. Robert E.*
Wichita Section, American Chemical Society, ix 327.
Wickham, Henry F.—Mechanism of Flow in Fluid-Catalyst Cracking, vii 263.
Wilkinson, E. E.—Inspection and Maintenance of Refinery Safety Valves, vii 246.
Williams, A. A.—(co-author) Heat of Combustion of Gasoline, iii 125.
Wilson, W. A.—Engineering Problems Involved in Gas Turbine Development, viii 292.
Wolf's Head Oil Refining Company, vi 237.
Wood River refinery (Shell) fluid units.
Workers, refinery, personnel training, x 400.
Worthington Pump and Machinery Corporation, ix 347.
Wyer, R. F.—Safety in Arc Welding, xi 481.
Wyld, Garrard, et al—Determination of Metals in Lubricating Oils, x 405.

X-Y

X-Ray Diffraction, Article 1—Basic Principles and Theory, F. G. Firth, North American Phillips Company, iv 154; Article 2—Constitution of Matter, F. G. Firth, v 181; Article 3—F. G. Firth, vi 223.
Yenkel, Jesse—Design of Structural Details for High Towers, xii 513.
Yields of hydrocarbon products, pressure effect upon, v 171.

*See News, Statistical and Service Features Index below.

News, Statistical and Service Features

Abstracts—see Science and Technology.
Abstracts, American Chemical Society, Sept. 198.
American Chemical Society in Print, Abstracts of Papers, Sept. 196.
American Petroleum Institute Executive Setup Revised, Nov. 192.
Anderson, Dr. R. P., quits API, Feb. 143.
Anglo-American oil pact agreement reached, Oct. 172.
Aruba (pictures), Apr. 126.
Asphalt, vanadium from, Feb. 144.
ASMP Re-establishing Petroleum Division, Jan. 186.
Baton Rouge Delivers Billionth Gallon, Jun. 134.
Boyd, Wm. R., Jr., "Petroleum's Magic Towers," Apr. 140.
Brown, Bruce K., Research, Industry and Government, Nov. 181.
Business Notes—Jan. 234; Feb. 238; Mar. 246; Apr. 235; May 242; Jun. 244; Jul. 240; Aug. 234; Sept. 264; Oct. 260; Nov. 264; Dec. 252.
California Standard's 100-Octane Unit Has Started Production, Feb. 130.
California Natural Gasoline Association, Nov. 190.
Celanese Corporation, Nov. 189.
Chemicals from Natural gas, Feb. 134.
CIO, Oct. 166.
Coleman, S. P., Oct. 160.
Cooperation Required in Accident Prevention—Otto Peters, Sr., Mar. 136.
Crude Runs to Stills, Production, Stocks—Jan. 156; Feb. 145d; Mar. 145; Apr. 152; May 136; Jun. 145; Jul. 146; Aug. 152; Sept. 178; Oct. 160; Nov. 194; Dec. 169.
Dean, John C.—Processing Materials from Petroleum, Aug. 136.
Demand for Oils 10 Percent Higher Than Last Year—L. J. Logan, Aug. 129.
Dewey, Bradley, president-elect ASC, Jan. 155.
Dunn, J. H., elected president NGAA, May 154.
Equipment—see New Equipment.
Equipment Suppliers—see Business Notes.
Fire Extinguishers, care and servicing, Sept. 153.
Fluid Catalytic-Cracking Process Diagrammatically Shown Step by Step, May 145.
Fractional Distillation of Petroleum—Robert Edmund Handschumacher, May 152.
Gilliland, E. R.—Synthetic Rubber Production More Than Million Long Tons, Jul. 132.
Government seizure halts strike, Oct. 148.
Handschumacher, Robert Edmund—Fractional Distillation of Petroleum, May 152.
Hanlon, Award, May 154.
Heinemann, Heinz (see Patents).
How to Do It—Sept. 147; Oct. 154; Nov. 182; Dec. 149.
Humble's Ingleside plant seized, Jun. 148.
Industry Showing Strain of Heavy Wartime Burden—L. J. Logan, May 130.
Jefferson Chemical Company Technical Personnel, Jan. 156.
Job evaluation, Nov. 170.
Kellogg fluid catalyst diagram, May 145.
Labor troubles, Jun. 148; Oct. 166.
Lago Refinery at Aruba Makes High Production Record During War, Apr. 126.
Larsen, Howard W., on industrial relations, Mar. 138.
Liquefied petroleum gas in chemical manufacture, Feb. 134.
Liquefied Petroleum Gas Industry in 1944—G. G. Oberfell and R. W. Thomas, Jan. 134.
Liquefied Petroleum Gas marketed 1922-1944, Jan. 143; progress in 1944, Jan. 138.
Logan, L. J.—Demand for Oils 10 Percent Higher Than Last Year, Aug. 129; Industry Showing Strain of Heavy Wartime Burden, May 130; Mexico Modernizing Refineries in Enlarging Oil Facilities, Dec. 155.
The Look Box (Editorials), Jan. 83; Feb. 85; Mar. 85; Apr. 87; May 87; Jun. 85; Jul. 85; Aug. 85; Sept. 93; Oct. 97; Nov. 93; Dec. 93.
May, George S., Business Foundation—Manpower Problems in Petroleum Refineries Solved by Job Evaluation and Wage Incentive, Nov. 170.
Metcalfe, Lyne S.—Pictures Aid Personnel Training, May 145.
Mexico Modernizing Refineries in Enlarging Oil Facilities—L. J. Logan, Dec. 155.
National Petroleum Association, annual meeting, Oct. 170.
Natural Gas Liquefication Process Enhances Hydrocarbon Reserve—Paul Ryan, Apr. 130.
Natural Gas Production and Use at Record High in 1944, Feb. 145.
Navy takes over plants in strike, Oct. 166.
New Equipment for the Modern Plant—Jan. 228; Feb. 226; Mar. 246; Apr. 249; May 257; Jun. 257; Jul. 248; Aug. 249; Sept. 273; Oct. 273; Nov. 273; Dec. 265.
Oberfell, G. G., and R. W. Thomas—Liquefied Petroleum Gas Industry in 1944, Jan. 134.
Oil supply and demand (chart), Oct. 161.
Oil for America's Future—Dr. Robert E. Wilson, Oct. 160.
Oil Worker International Union, Oct. 164.
O'Mahoney oil investigation, Oct. 160.
One Refinery Worker's Observations on Industrial Relations—Howard W. Larsen, Mar. 138.
Patents, digest of United States—Compiled by Heinz Heineman: On Refining of Hydrocarbons, Jan. 169; Polymerization of Hydrocarbons, Mar. 178; Dehydrogenation of Hydrocarbons, Jun. 170; Alkylation of Hydrocarbons, Jul. 170 Isomerization of Hydrocarbons, Nov. 208; Refining of Hydrocarbons, Dec. 172.
Peters, Otto, Sr.—Cooperation Required in Accident Prevention, Mar. 136.
Petro-Chemical Plant Mixing Materials for Synthetic Fabric Manufacture, Nov. 168.
Petroleum's Magic Towers—William R. Boyd, Jr., Apr. 140.
Pew, James E., gets Hanlon Award, May 154.
Phillips' New Laboratory Includes Rubber Research Facilities, Mar. 134.
Pictures Aid Personnel Training—Lyne S. Metcalfe, May 145.
Poland, Jun. 138.
Processing Materials from Petroleum—John C. Dean, Aug. 136.
Refineries in Poland Need Modernization—Damian Wandyca, Jun. 138.
Research, Industry and Government—Bruce K. Brown, Nov. 181.
Rubber, synthetic, production, Jul. 132.
Ryan, Paul—Natural Gas Liquefication Process, Apr. 130.
Schoch, Dr. E. P., plan for gas utilization, Mar. 148.
Science and Technology Abstracts—Jan. 132; Feb. 168; Mar. 188; Apr. 168; May 178; Jun. 192; Jul. 184; Aug. 156; Sep. 212; Oct. 178; Nov. 218; Dec. 162.
Senate committee, petroleum resources, Oct. 160.
Shell Oil Company Laboratory Studying Jet-Propulsion Fuels, May 150.
Standard Oil Company (Indiana), Oct. 162.
Standard (New Jersey) pipe lines merged, Jan. 162.
Strike, companies involved, Oct. 168.
Synthetic fuel study, funds for, Feb. 146.
Synthetic Rubber Production More Than Million Long Tons—E. R. Gilliland, Jul. 132.
Thompson, Paul K.—Trends in the Liquefied Petroleum Gas Industry, Feb. 134.
Tide Water Operating World's Largest Fluid-Type Catalytic Unit, Mar. 132.
Trends in the Liquefied Petroleum Gas Industry as Reflected by the Industry Survey—Paul K. Thompson, Feb. 134.
Vanadium from asphalt, Feb. 144.
Wage incentive, Nov. 170.
Wandyes, Damian—Refineries in Poland Need Modernization, Jun. 138.
War's End Releases Pent-Up Plant Building, Sept. 154.
Wilson, Dr. Robert E.—Oil for America's Future, Oct. 160.

Petroleum Refiner is Published Monthly by Gulf Publishing Company
3301 Buffalo Drive, Postoffice Box 2608, Houston 1, Texas